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REMARKS

In the latest Office Action, claims 31-35, 37 and 42-45 were rejected under 35 U.S.C. 102(b) as being anticipated by Chung et al., U.S. Patent No. 5,094,981 (newly cited). The Examiner asserts that Chung et al. teach a first metal silicide 38B, a second metal silicide 40B, and an intermetallic compound 36B comprised of metal from the first and second metal silicide. However, applicant wishes to point out that the **composite** interconnect layer of Chung et al. is actually represented by items 40A to 40C in Chung's specification and drawings. See Chung et al., col. 5, lines 57-66 and Fig. 1e. The composite interconnect layer is formed by a plasma etching step and comprises portions of a primary interconnect layer of aluminum, a titanium-tungsten or tungsten barrier layer 36, and an underlying titanium layer 34. There is no teaching in Chung et al. of a composite structure comprising a first metal silicide, a second metal silicide, and an intermetallic compound which comprises a metal from the first metal silicide and a metal from a second metal silicide as claimed.

With regard to compound 36B of Chung et al. which is referred to by the Examiner as an "intermetallic compound," this compound does not contain a metal from a first metal **silicide** and a metal from a second metal **silicide** as claimed, but rather comprises remaining portions of barrier material from layer 36. See col. 6, lines 4-6 and Fig. 1e. And while compound 38A comprises a metal silicide, it is not part of the final composite structure 40A-40C as pointed out above.

Accordingly, Chung et al. do not anticipate the claims as they do not teach a composite interconnect structure including a first metal silicide, a second metal silicide, and an intermetallic compound which comprises a metal from each of the first and second metal silicides.

Applicant has noted the Examiner's assertion that Chung et al. teach a first metal silicide comprising titanium silicide and a second metal silicide comprising tungsten silicide, referring to col. 7, lines 53-55. However, what Chung et al. actually teach is that materials such as titanium silicide or tungsten silicide may be **substituted** for

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aluminum as the primary interconnect metal in the composite structure. There is no teaching in Chang of using both titanium silicide and tungsten silicide as a substitute for aluminum. Nor is there any teaching or suggestion in Chang that using both silicides would result in the formation of an intermetallic compound comprising a metal from each of the metal silicides.

Claims 36, 38-41, and 46-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chung et al. in view of Okamoto, U.S. Patent No. 4,910,578. The Examiner asserts that Okamoto teaches an interconnect structure including a first metal silicide 4, a second metal silicide 8, and an intermetallic compound 10 comprising metal from the first and second metal silicides. The Examiner further asserts that Okamoto teaches use of the interconnect structure in memory arrays because "memory arrays are well known to be LSI circuits," concluding that it would have been obvious to use the interconnect structure of Chung et al. in a memory array.

Applicant submits that neither Chung et al. nor Okamoto teaches the claimed interconnect structure. As pointed out above, Chung et al. do not teach an intermetallic compound in their composite structure which comprises a metal from each of a first metal silicide and a second metal silicide. And, as applicant has previously pointed out to the Examiner, the film 10 of Okamoto is a separate barrier film which is not formed from metal silicides 4 and 8. Rather, the film 10 is deposited separately, thus it does not include a metal **from** each of a first and second metal silicide as recited in the claims. Nor is film 10 part of a composite interconnect structure as claimed.

Nor do Chung et al. or Okamoto teach or suggest an intermetallic compound which is formed by a reaction between a first metal silicide and a second metal silicide as recited in claim 41. The composite interconnect structure of Chung et al. is formed by plasma etching the primary interconnect layer (aluminum) along with layers 36 (TiW) and 34 (Ti), and the film 10 of Okamoto is formed in a separate step. While the Examiner maintains that the "formed by" language of claim 41 has not been given

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patentable weight, the Examiner cannot choose to ignore language which clearly distinguishes over the prior art. See *In re Luck*, 177 USPQ 523 (CCPA 1973).

As neither Chung et al. nor Okamoto teach the claimed interconnect structure, there is no motivation to combine their teachings. Even if the teachings of the references were combined, the claimed composite interconnect structure would not result.

For all of the above reasons, applicant submits that claims 31-49 are patentable over the cited art of record. Early notification of allowable subject matter is respectfully solicited.

Respectfully submitted,

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